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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/576,827	04/24/2006	Bruno Gratacos	10431-17	9080

7590
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EXAMINER

HUGHES, SCOTT A

ART UNIT	PAPER NUMBER
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3663

MAIL DATE	DELIVERY MODE
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08/19/2008

PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/576,827	Applicant(s) GRATACOS, BRUNO	
	Examiner SCOTT A. HUGHES	Art Unit 3663	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 28 April 2008.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-6 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-6 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 24 April 2006 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Response to Arguments

Applicant's arguments and amendments filed 4/28/2008 with respect to the rejections under 35 USC 112 have been fully considered and are persuasive. The previous rejections under 35 USC 112 are withdrawn.

Applicant's arguments filed 4/28/2008 with respect to the rejections under 35 USC 102 based on Horne have been fully considered and are persuasive. The rejections based on the Horne reference are withdrawn.

Applicant's arguments filed 4/28/2008 with respect to the rejections under 35 USC 102 and 35 USC 103 based on Gaiser have been fully considered but they are not persuasive.

With respect to the Gaiser reference (6205403), applicant argues that the various data are not isolated depending on whether they correspond to propagation with reflection or with conversion. This argument is not persuasive because Gaiser discloses that the data obtained include reflection data and conversion data, and Gaiser further teaches that the components of the data are separated. Gaiser teaches that the inline and crossline components are related to the converted waves, and that the pressure signal is related to the reflected waves (Column 3, Lines 29-48; Column 5, Lines 5-45). Therefore, Gaiser teaches isolating the data depending on whether they are reflection or conversion data. Applicant's argument that the least squares problem is Gaiser does not relate to operators that minimize a deviation between reference data and data obtained by a sensor reconstruction is not persuasive. The sensor

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reconstruction in Gaiser is the reconstruction of the sensor so that it is perfectly coupled. The operators in Gaiser are those that minimize the difference between the data and the reconstructed (coupled) sensor.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1-4 and 6 are rejected under 35 U.S.C. 102(b) as being anticipated by Gaiser (6205403).

With regard to claim 1, Gaiser discloses a method of processing seismic data acquired by means of a sensor having at least three geophone components (Column 1; Column 3, Lines 10-47), wherein estimators are determined which are combinations of these components, wherein various data are isolated, through the estimators depending on whether they correspond to propagation with reflection or with conversion (Column 1; Column 3, Line 10 to Column 5, Line 58), wherein operators to be applied to the various components of the sensor are determined for determining a sensor reconstruction, the operators being those that minimize a deviation between reference data and data obtained by applying the estimators the sensor reconstruction (Column 3, Line 10 to Column 5, Line 58), the operators thus determined being applied to the data acquired (Column 3, Line 10 to Column 5, Line 58).

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With regard to claim 2, Gaiser discloses that the sensor furthermore includes a hydrophone, and that the reference data for reconstructing a vertical geophone are derived from the data acquired by the hydrophone (Column 1; Column 3, Line 10 to Column 5, Line 58).

With regard to claim 3, Gaiser discloses that the reference data for reconstructing a vertical geophone without hydrophone or for reconstructing horizontal geophones are derived from application of the estimators to one of the geophones of the sensor (Column 3, Line 10 to Column 5, Line 58).

With regard to claim 4, Gaiser discloses that the orientation in the horizontal plane of a geophone component is obtained by minimizing the estimator of the transverse reflection (Column 4, Lines 1-62).

With regard to claim 5, Gaiser discloses that the estimators are determined as a function of a model of isotropic propagation or including the azimuthal anisotropy.

With regard to claim 6, Gaiser discloses a method of processing seismic data acquired by means of a sensor having at least three geophone components (Column 1; Column 3, Lines 10-47), wherein estimators are determined which are combinations of these components, wherein various data are isolated, through the estimators, depending on whether they correspond to propagation with reflection or with conversion (Column 1; Column 3, Line 10 to Column 5, Line 58).

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

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(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claim 5 is rejected under 35 U.S.C. 103(a) as being unpatentable over Gaiser as applied to claims 1-4 and 6 above, and further in view of Baigini (WO0151955).

With regard to claim 5, Gaiser does not disclose that the estimators are determined as a function of a model of isotropic propagation or including the azimuthal anisotropy. Baigini teaches using estimators to restructure the components of a sensor and teaches that the estimators are determined as a function of a model of isotropic propagation or a model including the azimuthal anisotropy (Pages 5-10). It would have been obvious to modify Gaiser to include of a model of isotropic propagation or a model including the azimuthal anisotropy as taught by Baigini in order to determine the shot geometries for the geophones dependent upon their coupling.

Conclusion

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any

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extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to SCOTT A. HUGHES whose telephone number is (571)272-6983. The examiner can normally be reached on M-F 9:00am to 5:30pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jack Keith can be reached on (571) 272-6878. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/S. A. H./
Examiner, Art Unit 3663

/Jack W. Keith/
Supervisory Patent Examiner, Art Unit 3663